

# CCS Parent-Child Full Report

**Parent Requirement**      **CCS-0010**      The CCS shall exchange information with the User Planning System in accordance with 530-ICD-NCCDS/UPS and 514-4ICD UPS.

Child Ident	Child Requirement
CCS.2-0010	Command Processing shall exchange information with the User Planning System (UPS) in accordance with NCC DFCD 530-DFCD-NCCDS/POCC 12/94 or later and 514-4OCD/0290 ICD Between the NCC UPS and the Electronic User 12/91 or later.
CCS.2-0020	Command Processing shall send a request to the User Planning System (UPS) to initiate the transfer of TDRS schedule information from the UPS to Command Processing.
CCS.2-0030	Command Processing shall provide the capability for an authorized user to make a request for TDRS service modifications via the UPS supplied GUI user interface
CCS.2-0040	Command Processing shall accept requested TDRS schedule information from the UPS.
CCS.2-0050	Command Processing shall notify the appropriate user when requested TDRS schedule information is not received within a specified time.

**Parent Requirement**      **CCS-0020**      The CCS shall exchange information with the Network Control Center (NCC) in accordance with 530-ICD-NCCDS/POCC and 530-DCFD1-NCCDS/POCC.

Child Ident	Child Requirement
CCS.1-0010	The FEP shall send Ground Configuration Management Requests (GCMRs) to the NCC.
CCS.1-0020	The FEP shall receive Operational Data Messages (ODMs) from the NCC.
CCS.1-0030	The FEP shall receive User Performance Data (UPD) messages from the NCC.

CCS.1-0040	The FEP shall receive time delay measurement information from the NCC.
CCS.2-0060	Command Processing shall send Ground Configuration Management Requests (GCMRs) to Front End Processing (FEP) to control the forward and return link parameters of the TDRSS.
CCS.2-0070	Command Processing shall receive Operations Data Messages (ODMs) information from SYM to monitor the configuration and performance of the TDRSS.

<b>Parent Requirement</b>	<b>CCS-0030</b>	The CCS shall exchange information with NASCOM in accordance with ICD-09 HST/Ground, MDOD-1 ICD/0180 NGT-NASCOM/POCC, MDOD-1 ICD/0182 JPL/GSFC Appendix K, MCC/JSC/Remote POCC Requirements Payload Operations Control Center Annex (PIP Annex No. 5; JSC 14009, Annex 5),and NSTS-21063 Remote POCC Interface.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0050	The FEP shall be capable of interfacing with the White Sands Complex (WSC) for telemetry and command communications with the spacecraft.
CCS.1-0060	The FEP shall be capable of interfacing with the GSTDN for telemetry and command communications with the spacecraft.
CCS.1-0070	The FEP shall be capable of interfacing with the DSN for telemetry and command communications with the spacecraft.
CCS.1-0080	The FEP shall be capable of interfacing with JSC for real-time engineering telemetry and command communications via the Nascom line during simulations, JISs, and servicing missions.

<b>Parent Requirement</b>	<b>CCS-0040</b>	The CCS shall exchange information with the Planning and Scheduling System in accordance with ICD-T1 CCS/P&S.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0080	Command Processing shall exchange information with Planning and Scheduling (P&S) in accordance with ICD-T1.
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CCS.2-0090	Command Processing shall receive planning and scheduling products, that include spacecraft command loads, mission timeline, and FDF products, from the Planning and Scheduling System.
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CCS.2-0100	Command Processing shall send status information concerning planning and scheduling products to the Planning and Scheduling System.
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<b>Parent Requirement</b>	<b>CCS-0050</b>	The CCS shall exchange information with the Science Data Processing System in accordance with ICD-T2 CCS/SDP.
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CCS.4-0010	Data Management shall accept requests from the Science Data Processing System for HST engineering data in accordance with ICD-T2.
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CCS.4-0020	Data Management shall send requested HST engineering data products to the Science Data Processing System in accordance with ICD-T2.
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<b>Parent Requirement</b>	<b>CCS-0060</b>	The CCS shall exchange information with PACOR II in accordance with ICD-50.
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<b>Parent Requirement</b>	<b>CCS-0070</b>	The CCS shall exchange information with the Project Reference Database Facility in accordance with ICD-26 Parts 2 through 5.
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CCS.5-0010	CCS Management shall send Project Reference Data updates to the PDB Facility.
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CCS.5-0020	CCS Management shall receive Project Reference Data Releases from the PDB Facility.
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<b>Parent Requirement</b>	<b>CCS-0080</b>	The CCS shall exchange information through the Common Test Device Interface (CTDI) in accordance with ICD-T3 Test Facility/CCS.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0090	The FEP shall send test device directives through the Common Test Device Interface.
CCS.1-0100	The FEP shall send test device specific commands through the Common Test Device Interface.
CCS.1-0110	The FEP shall receive test device status, including test events, through the Common Test Device Interface.
CCS.1-0120	The FEP shall receive test device specific telemetry through the Common Test Device Interface.

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<b>Parent Requirement</b>	<b>CCS-0090</b>	The CCS shall exchange information with the Simulation Facilities in accordance with ICD-28 (HSTSim), ICD-18 (POCC to SOC), and ICD-09 (for PSS).
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0130	The FEP shall send simulator specific directives to the specified Simulation Facility.
CCS.1-0140	The FEP shall send simulator specific commands to the specified Simulation Facility.
CCS.1-0150	The FEP shall receive simulator specific status, including simulation events, from the specified Simulation Facility.
CCS.1-0160	The FEP shall receive simulator specific telemetry from the specified Simulation Facility.

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<b>Parent Requirement</b>	<b>CCS-0100</b>	The CCS shall exchange information with a 'standard time source' in accordance with NMEA 0182.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0170	The FEP shall receive information identifying the current time from the 'standard time source'.
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CCS.5-0350	CCS Management shall receive time information from a 'standard time source' in accordance with NMEA 0182.
CCS.5-0360	CCS Management shall maintain the 'standard time' that is provided to all operational components of the CCS.

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**Parent Requirement**      **CCS-0110**      The CCS shall exchange information with the Flight Software Facilities in accordance with ICD-T4 FSW/CCS.

**Child Ident**                      **Child Requirement**

CCS.2-0110	Command Processing shall exchange information with Flight Software (FSW) in accordance with ICD-T4.
CCS.2-0120	Command Processing shall receive spacecraft computer flight software loads from the Flight Software Facilities.
CCS.4-0030	Data Management shall send spacecraft computer software dumps to the Flight Software Facilities in accordance with ICD-T4.

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**Parent Requirement**      **CCS-0130**      The CCS shall send updated software configurations to the Test Facilities when those configuration updates affect the specified facility.

**Child Ident**                      **Child Requirement**

CCS.5-0030	CCS Management shall distribute CCS Software Releases to Test Facilities.
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**Parent Requirement**      **CCS-0140**      The CCS shall provide the capability for authorized CCS users to access system functions and data through a graphical user interface.

**Child Ident**                      **Child Requirement**

CCS.2-0130	Command Processing shall provide the capability for authorized users to request the transfer of planning and scheduling products from the Planning and Scheduling System..
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CCS.4-0040	Data Management shall provide the capability for authorized CCS users to access system functions and data.
CCS.4-0320	Data Management shall provide an authorized CCS user the capability to request that the FEP replay engineering telemetry data.
CCS.4-0410	Data Management shall provide authorized CCS users and applications query access to all data that is maintained in tabular form within CCS.
CCS.5-0080	CCS Management shall accept user interactive requests for system configuration information from GUI.
CCS.5-0090	CCS Management shall return user interactive responses with system configuration information to GUI.
CCS.5-0100	CCS Management shall receive CCM interactive requests for system configuration information from CCS Users.
CCS.5-0110	CCS Management shall send CCM interactive responses with system configuration information to CCS Users.

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**Parent Requirement**      **CCS-0150**      The CCS shall provide the capability for authorized CCS users to manually override or disable automated system functions.

<b>Child Ident</b>	<b>Child Requirement</b>
CCS.4-0050	Data Management shall provide the capability for authorized CCS users to manually override or disable automated functions.
CCS.4-0350	Data Management shall accept and execute requests from authorized users for manual initiation or interruption of processing operations.
CCS.5-0170	CCS Management shall provide the capability for authorized users to bring the CCS system up to an operational state of readiness.
CCS.5-0180	CCS Management shall provide the capability for authorized users to bring the CCS system down to an idle state.

CCS.5-0230	CCS Management shall accept operator commands to initialize processors, perform configuration changes, and allocate specific resources.
CCS.5-0280	CCS Management shall provide the capability for authorized users to inhibit the CCS system from automatically taking specific actions when an unexpected deviation in CCS system behavior is detected.
CCS.5-0570	CCS Management shall be able to establish the CCS configuration and constitute a functioning operational string within 5 minutes assuming the processors are powered on and running.

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<b>Parent Requirement</b>	<b>CCS-0160</b>	The CCS shall provide access to on-line help functions and system documentation to CCS users.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0060	Data Management shall return the results of requested functions or data to the requesting user.
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<b>Parent Requirement</b>	<b>CCS-0170</b>	The CCS shall accept requests from public users to perform publicly available functions, including retrieval of unprotected data.
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CCS.4-0450	Data Management shall provide access to certain specially prepared data to the general public through the World Wide Web.
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<b>Parent Requirement</b>	<b>CCS-0180</b>	The CCS shall send the specified information to public users in response to a request to perform publicly available functions.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0450	Data Management shall provide access to certain specially prepared data to the general public through the World Wide Web.
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<b>Parent Requirement</b>	<b>CCS-0190</b>	The CCS shall maintain the following information: spacecraft engineering data; spacecraft event data; Integrated Command Schedule (ICS); Project Reference Data (PRD); system event data; and, system configuration and process information.
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Child Ident	Child Requirement
CCS.1-0180	The FEP shall maintain the telemetry format information needed to accept, decommutate and process (e.g., limit check) any established engineering telemetry stream.
CCS.2-0140	Command Processing shall provide for both a planning mode and operational mode Integrated Command Schedule (ICS).
CCS.2-0150	Command Processing shall maintain the following information for each entry in the Integrated Command Schedule: action to be performed, time action is to be performed, action specific information, and status indicators.
CCS.2-0160	Command Processing shall maintain all information needed to successfully generate spacecraft command loads.
CCS.4-0110	Data Management shall accept requests from the FEP for specified data maintained by DMG.
CCS.4-0120	Data Management shall return the specified data to the FEP or an indication of why the specified data can not be provided.
CCS.4-0130	Data Management shall accept requests from CMD for specified data maintained by DMG.
CCS.4-0140	Data Management shall return the specified data to CMD or an indication of why the specified data can not be provided.
CCS.4-0150	Data Management shall accept requests from SYM for specified data maintained by DMG.
CCS.4-0160	Data Management shall return the specified data to SYM or an indication of why the specified data can not be provided.
CCS.4-0170	Data Management shall accept requests from CCM for specified data maintained by DMG.

CCS.4-0180	Data Management shall return the specified data to CCM or an indication of why the specified data can not be provided.
CCS.4-0190	Data Management shall accept requests from the GUI (on behalf of a CCS user) for specified data maintained by DMG.
CCS.4-0200	Data Management shall return the specified data to the GUI or an indication of why the specified data can not be provided.
CCS.4-0270	Data Management shall maintain information concerning the location and status of all stored engineering information (i.e., telemetry, OBC dump, status buffer dump data).
CCS.4-0280	Data Management shall maintain information concerning the source of all stored engineering information.
CCS.4-0290	Data Management shall logically segregate engineering information that is received from different sources.
CCS.4-0360	Data Management shall keep a record of each merged operational engineering telemetry data segment bounded at either end by a data gap, a change in the data source (as indicated by the Spacecraft Data Mode flag -- from real-time to recorded or vice versa), or a format change.
CCS.4-0370	Data Management shall maintain the following information related to spacecraft engineering data: source of the data, time associated with data, data identifier, data value(s), and status indicator(s).
CCS.4-0380	Data Management shall provide storage for data that is maintained in tabular form (e.g., engineering data, event data, catalogs) that permits users and applications to create, retrieve, update, and delete that data.
CCS.4-0390	Data Management shall maintain Project Reference Data extracted from the following files defined in ICD-26: telemetry format data (TDFD), command data (CMDf, CMDS, CMDP), command groups (CMDG), dump compare (DMPR), derived parameters (DPAR), general equations (GEQF), OTA definition (OTAF), PSTOL procedures (PSTO), servicing mission definition (SMDF), general global parameters (GGPD), symbols of interest (SOIF), table format and parameters (TFPF), ??(TIDF), tape table of contents (TTOC).
CCS.4-0400	Data Management shall maintain the following information for each system event: time of event, event type identifier (e.g., spacecraft, ground system, or CCS), event specific information.

CCS.4-0420	Data Management shall accept and store file data generated by CCS applications.
CCS.4-0440	Data Management shall provide the capability for operators to backup and restore data used in CCS to ensure against loss and to facilitate reconstituting the system after various types of failure.
CCS.5-0120	CCS Management shall issue information requests to DMG for specified data.
CCS.5-0130	CCS Management shall receive requested data from DMG or an indication of why the requested data was not be provided.
CCS.5-0140	CCS Management shall send Analysis Products to DMG for storage.
CCS.5-0150	CCS Management shall maintain operational system configuration and process information (e.g., operational system configuration, string definitions, and status).
CCS.5-0160	CCS Management shall maintain all requirements, and system design and implementation information (e.g., system design data, source code, testing information, and documentation).

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<b>Parent Requirement</b>	<b>CCS-0200</b>	The CCS shall be able to maintain operational and development databases to support both flight operations and Servicing Missions.
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<b>Child Ident</b>	<b>Child Requirement</b>
CCS.1-0190	The FEP shall be able to access operational and development databases to support both flight operations and Servicing Missions.
CCS.4-0391	Data Management shall be able to maintain multiple versions of the operational and development databases to support both flight operations and Servicing Missions.
CCS.5-0210	CCS Management shall be able to maintain multiple versions of both operational and development databases to support both flight operations and Servicing Missions.

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<b>Parent Requirement</b>	<b>CCS-0210</b>	The CCS shall ingest and store spacecraft engineering data, both recorded and real-time, in a form suitable for engineering and scientific evaluation of spacecraft performance.
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Child Ident	Child Requirement
CCS.1-0180	The FEP shall maintain the telemetry format information needed to accept, decommutate and process (e.g., limit check) any established engineering telemetry stream.
CCS.1-0200	The FEP shall detect telemetry format changes for any data for which frame synchronization is maintained, report the change as an event, and automatically switch to the proper decommutation format.
CCS.1-0210	The FEP shall automatically determine the format of received engineering data.
CCS.1-0220	The FEP shall convert received engineering data to engineering units for storage in a common format (i.e., Front-end Output Format).
CCS.1-0230	The FEP shall send converted engineering data received from the spacecraft to DMG.
CCS.1-0240	The FEP shall associate an identifier with each packet of engineering data that unambiguously indicates the source of that data (e.g., spacecraft, test device, simulation facility, replay).
CCS.1-0250	The FEP shall associate a timestamp correlated to UTC, accurate to 10 milliseconds with a precision of 1 millisecond, with each received packet of engineering data received from the spacecraft that unambiguously indicates when the data was sampled (i.e., spacecraft time).
CCS.1-0280	The FEP shall provide a general equation processor capability to provide for special computations.
CCS.1-0290	The FEP shall calculate derived telemetry parameters.
CCS.1-0300	The FEP shall provide the capability of limit checking any decommutated telemetry parameter (or derived telemetry parameter) using high- and low-limit (red low, red high, yellow low and yellow high) values contained in the FEP data base.
CCS.1-0310	The FEP shall accumulate data quality statistics concerning the quality of both the communications lines and the HST telemetry stream.

CCS.1-0320	The FEP shall be able to store raw engineering data for 30 days.
CCS.1-0330	The FEP shall accept requests from DMG to replay engineering telemetry that is up to 30 days old.
CCS.1-0340	The FEP shall replay the requested engineering telemetry data to DMG in Front-end Output Format (FOF).
CCS.4-0220	Data Management shall accept and store both recorded and real-time converted operational HST engineering telemetry data containing both raw values and values converted to engineering units.
CCS.4-0250	Data Management shall accept and store selected shuttle engineering telemetry data during servicing missions.
CCS.4-0270	Data Management shall maintain information concerning the location and status of all stored engineering information (i.e., telemetry, OBC dump, status buffer dump data).
CCS.4-0300	Data Management shall communicate with the FEP to ensure that engineering information sent by the FEP has been successfully stored.
CCS.4-0310	Data Management shall be able to automatically request that the FEP replay engineering telemetry data that was either lost or not received.
CCS.4-0320	Data Management shall provide an authorized CCS user the capability to request that the FEP replay engineering telemetry data.

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**Parent Requirement**      **CCS-0220**      The CCS shall store merged spacecraft engineering data for the life of the mission.

<b>Child Ident</b>	<b>Child Requirement</b>
CCS.4-0070	Data Management shall receive spacecraft engineering data from the FEP.
CCS.4-0330	Data Management shall merge operational engineering telemetry data received from the spacecraft into a single data stream that contains no temporal data overlaps.
CCS.4-0340	Data Management shall maintain storage of all operational engineering telemetry data for the life of the mission.

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CCS.4-0360	Data Management shall keep a record of each merged operational engineering telemetry data segment bounded at either end by a data gap, a change in the data source (as indicated by the Spacecraft Data Mode flag -- from real-time to recorded or vice versa), or a format change.
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<b>Parent Requirement</b>	<b>CCS-0230</b>	The CCS shall extract memory dump data from the spacecraft science data stream.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0350	The FEP shall extract from the real-time or playback science channel NSSC-1 status buffer, NSSC-1 OBC dump, FOC OBC dump, STIS OBC dump, NICMOS OBC dump, and ACS OBC dump data.
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<b>Parent Requirement</b>	<b>CCS-0240</b>	The CCS shall be able to ingest and store onboard computer memory dump data for the life of the mission.
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CCS.1-0360	The FEP shall collect, store, and process OBC and microprocessor dumps.
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CCS.1-0370	The FEP shall send OBC and microprocessor dump data to the Flight Software facility.
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CCS.1-0380	The FEP shall construct best-estimate images of OBC and microprocessor dumps.
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CCS.1-0390	The FEP shall send spacecraft engineering data to DMG.
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CCS.4-0070	Data Management shall receive spacecraft engineering data from the FEP.
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CCS.4-0230	Data Management shall accept and store onboard computer memory dump data.
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<b>Parent Requirement</b>	<b>CCS-0250</b>	The CCS shall be able to ingest and store engineering data from new ORU/ORIs.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0400	The FEP shall be able to ingest and store engineering data from new ORU/ORIs.
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CCS.4-0240	Data Management shall accept and store converted HST engineering telemetry data from new ORU/ORIs.
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<b>Parent Requirement</b>	<b>CCS-0260</b>	The CCS shall be able to store converted engineering data received through the common test device interface.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0240	The FEP shall associate an identifier with each packet of engineering data that unambiguously indicates the source of that data (e.g., spacecraft, test device, simulation facility, replay).
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CCS.1-0260	The FEP shall associate a timestamp, accurate to 1 millisecond, with each received packet of engineering data received from a test device that unambiguously indicates when the data was received (i.e., wall clock time).
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CCS.1-0410	The FEP shall send converted engineering data received through the common test device interface to DMG.
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CCS.4-0260	Data Management shall accept and store converted engineering telemetry data produced during test and simulation activities.
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<b>Parent Requirement</b>	<b>CCS-0270</b>	The CCS shall be able to store converted engineering data received from a simulation facility.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0240	The FEP shall associate an identifier with each packet of engineering data that unambiguously indicates the source of that data (e.g., spacecraft, test device, simulation facility, replay).
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CCS.1-0270	The FEP shall associate a timestamp, accurate to 1 millisecond, with each received packet of engineering data received from a simulation facility that unambiguously indicates when the data was received (i.e., wall clock time).
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CCS.1-0420	The FEP shall send converted engineering data received from a simulation facility to DMG.
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CCS.4-0260	Data Management shall accept and store converted engineering telemetry data produced during test and simulation activities.
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<b>Parent Requirement</b>	<b>CCS-0280</b>	The CCS shall provide the capability for authorized users to define a new telemetry format.
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<b>Parent Requirement</b>	<b>CCS-0290</b>	The CCS shall provide the capability for authorized users to define new telemetry monitor conversion parameters.
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<b>Parent Requirement</b>	<b>CCS-0300</b>	The CCS shall provide the capability for authorized users to define new derived telemetry monitors based on a combination of fundamental spacecraft monitors.
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<b>Parent Requirement</b>	<b>CCS-0310</b>	The CCS shall process products received from the planning and scheduling system to verify the integrity of that information.
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CCS.2-0170	Command Processing shall process products received from the planning and scheduling system to verify the integrity of that information.
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CCS.2-0180	Command Processing shall maintain a record of each product received from the Planning and Scheduling System.
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CCS.2-0190	Command Processing shall notify the appropriate user when the integrity of received planning and scheduling products can not be verified.
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CCS.2-0200	Command Processing shall send planning and scheduling products to data management for archive and general CCS user access.
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<b>Parent Requirement</b>	<b>CCS-0320</b>	The CCS shall incorporate information from planning and scheduling products into the integrated command schedule.
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CCS.2-0210	Command Processing shall validate all information prior to its incorporation into an integrated command schedule.
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CCS.2-0220	Command Processing shall provide the capability for an authorized CCS user to select a set of planning products for insertion into the planning mode ICS.
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CCS.2-0230	Command Processing shall load spacecraft event information into a planning mode ICS from selected P&S product sets.
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<b>Parent Requirement</b>	<b>CCS-0330</b>	The CCS shall be able to automatically acquire and incorporate the latest TDRS contact information into the integrated command schedule.
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CCS.2-0240	Command Processing shall be able to automatically acquire and incorporate the latest TDRS contact information into either a planning mode or operational mode ICS.
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<b>Parent Requirement</b>	<b>CCS-0340</b>	The CCS shall be able to automatically request needed changes to the latest TDRS contact information.
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CCS.2-0250	Command Processing shall be able to automatically request needed changes to the latest TDRS contact information.
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<b>Parent Requirement</b>	<b>CCS-0350</b>	The CCS shall provide the capability for authorized users to incorporate requested actions (e.g., real-time commands, flight software loads) into the integrated command schedule.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0260	Command Processing shall provide the capability for an authorized CCS user to submit requests via a command-line based language called CCS command language (CCL).
CCS.2-0270	Command Processing shall provide the capability for authorized CCS users to construct a new ICS in a planning mode.
CCS.2-0280	Command Processing shall provide the capability for authorized CCS users to modify an existing ICS in a planning mode.
CCS.2-0290	Command Processing shall support concurrent access to the planning mode ICS by authorized CCS users.
CCS.2-0300	Command Processing shall provide the capability for an authorized user to promote a planning mode ICS to the operational mode ICS.
CCS.2-0310	Command Processing shall provide the capability for an authorized CCS user to initiate the collection of OBC memory dump data from the DF-224; Co-processor; NSSC-1; 486; FOC; STIS; NICMOS; ACS; WF/PC II.

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<b>Parent Requirement</b>	<b>CCS-0360</b>	The CCS shall be able to generate spacecraft commands in a form that can be transmitted to the spacecraft.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0320	Command Processing shall be able to generate spacecraft commands in a form that can be transmitted to the spacecraft.
CCS.2-0330	Command Processing shall receive requests from SYM for the execution of CCL procedures with associated arguments.

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CCS.2-0340	Command Processing shall receive requests from SYM for the execution of CCL procedures necessary to support table loads as defined in the CCS table load database.
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<b>Parent Requirement</b>	<b>CCS-0370</b>	The CCS shall be able to generate commands for new ORU/ORIs in a form that can be transmitted to the spacecraft.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0350	Command Processing shall provide the capability for an authorized CCS user to designate the current set of active instruments from the set of all instruments defined in the CCS database.
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CCS.2-0360	Command Processing shall only allow commands to be generated for active instruments.
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CCS.2-0370	Command Processing shall provide the capability for an authorized CCS user to control all aspects of instrument switchover by a single control mechanism.
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<b>Parent Requirement</b>	<b>CCS-0380</b>	The CCS shall provide the capability for authorized users to generate a spacecraft schedule timeline in graphical format.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0380	Command Processing shall provide the capability for an authorized user to generate a spacecraft schedule timeline from a planning mode ICS.
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CCS.2-0390	Command Processing shall provide the capability for an authorized user to generate a spacecraft schedule timeline from the operational ICS.
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<b>Parent Requirement</b>	<b>CCS-0390</b>	The CCS shall be able to verify that an action in the integrated command schedule is allowable, when it is time to execute that action.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0400	Command Processing shall send to the HST critical real-time commands that have been marked as allowed by an authorized CCS user when operating in manual override mode.
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CCS.2-0410	Command Processing shall send to the HST critical real-time commands that have been marked as allowed in the ICS when operating in ICS execution mode.
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<b>Parent Requirement</b>	<b>CCS-0400</b>	The CCS shall provide the capability for authorized users to manually verify that actions specified in the integrated command schedule are allowable.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0420	Command Processing shall prevent the transmission of critical real-time commands to the HST without prior authorization by an authorized CCS user.
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<b>Parent Requirement</b>	<b>CCS-0410</b>	The CCS shall execute verified actions in the integrated command schedule at the specified time.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0430	Command Processing shall execute CCL procedures from an authorized CCS procedure database when under ICS executor control.
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CCS.2-0440	Command Processing shall notify System Monitoring (SYM) when a subscribed event is within a database specified time interval of its start time.
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<b>Parent Requirement</b>	<b>CCS-0420</b>	The CCS shall record the execution status of each action specified in the integrated command schedule.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0450	Command Processing shall annotate the operational ICS when scheduled activities are not executed as planned.
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CCS.2-0460	Command Processing shall notify Data Management when a portion of the ICS is available for archive.
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CCS.2-0470	Command Processing shall send to System Monitoring (SYM) system event log data which will document all command processing.
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CCS.4-0090	Data Management shall receive all Integrated Command Schedule (ICS) data from CMD.
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<b>Parent Requirement</b>	<b>CCS-0430</b>	The CCS shall provide the capability for authorized users to suspend the execution of actions specified in the integrated command schedule.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0480	Command Processing shall provide the capability for an authorized CCS user to assign command capability to the ICS executor.
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CCS.2-0490	Command Processing shall provide the capability for an authorized CCS user to revoke command capability from the ICS executor.
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<b>Parent Requirement</b>	<b>CCS-0440</b>	The CCS shall control and maintain information concerning its internal configuration.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0430	The FEP shall accept directives to configure the FEP mode of operation from CMD.
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CCS.1-0440	The FEP shall accept directives to configure the FEP forward and return links from CMD.
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CCS.1-0450	The FEP shall request from DMG Project Reference Data (PRD) for the requested configuration or mode change.
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CCS.1-0460	The FEP shall accept the requested Project Reference Data (PRD) for the configuration or mode change from DMG.
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CCS.2-0500	Command Processing shall send configuration requests to CCS Management to control and update the system wide state information related to CCS ground equipment status.
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CCS.2-0510	Command Processing shall receive CCS ground equipment configuration information from CCS Management.
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CCS.2-0520	Command Processing shall send configuration requests to Front End Processing (FEP) to control the forward and return link parameters within the FEP.
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CCS.2-0530	Command Processing shall notify the appropriate user when requested changes to its internal configuration can not be performed.
CCS.4-0080	Data Management shall receive all system event data from SYM.
CCS.4-0210	Data Management shall send information concerning DMG events to SYM.
CCS.5-0040	CCS Management shall accept reconfiguration requests from CMD.
CCS.5-0050	CCS Management shall return reconfiguration responses to CMD for each reconfiguration received.
CCS.5-0150	CCS Management shall maintain operational system configuration and process information (e.g., operational system configuration, string definitions, and status).
CCS.5-0190	CCS Management shall be able to initialize and configure hardware components, software processes, and network connections to constitute a functioning CCS operational string.
CCS.5-0200	CCS Management shall be able to properly connect the appropriate external interfaces to a CCS operational string.

<b>Parent Requirement</b>	<b>CCS-0450</b>	The CCS shall be able to execute actions that result in the transmission of information (i.e., commands and data) to the spacecraft.
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<b>Child Ident</b>	<b>Child Requirement</b>
CCS.1-0470	The FEP shall accept requests from CMD to control the FEP configuration and operation.
CCS.1-0480	The FEP shall notify CMD of the status of a requested configuration or mode change.
CCS.1-0490	The FEP shall accept commands and data from CMD to be uplinked to the spacecraft.
CCS.1-0500	The FEP shall provide the capability to format command buffer data into Nascom-compatible 4800-bit blocks or IP packets.
CCS.1-0510	The FEP shall be capable of transmitting and metering spacecraft command data blocked into Nascom 4800 bit blocks or IP packets.

CCS.1-0520	The FEP shall provide both a 'one-step' and 'two-step' mode for command buffer transmission.
CCS.1-0530	The FEP shall support both manual and automatic command retransmission options.
CCS.1-0540	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to the spacecraft has been successfully performed.
CCS.1-0550	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to the spacecraft cannot be successfully performed.
CCS.2-0540	Command Processing shall be able to execute actions that request changes to the configuration of the ground system equipment used to communicate with the spacecraft (via NASCOM).
CCS.2-0550	Command Processing shall notify the appropriate user when that requested changes to the configuration of the ground system equipment can not be performed.
CCS.2-0560	Command Processing shall execute PRS PSTOL procedures with modifications supported by the PSTOL Re-certification Facility (PRF) Pre-Processor.
CCS.2-0570	Command Processing shall execute PRS command groups as CCL procedures at execution time.

<b>Parent Requirement</b>	<b>CCS-0460</b>	The CCS shall be able to automatically verify the transmission of information (i.e., commands and data) to the spacecraft, based on received engineering data, has been successfully performed.
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<b>Child Ident</b>	<b>Child Requirement</b>
CCS.2-0580	Command Processing shall provide the capability to validate the uplink of block loads to the DF-224; NSSC-1; 486; STIS; NICMOS; ACS by comparing the uplink image with the dump contents of the same memory areas.
CCS.2-0590	Command Processing shall receive captured memory dump data from Data Management to support the uplink verification comparison process.
CCS.2-0600	Command Processing shall notify the appropriate user when the transmission of information (i.e., commands and data) to the spacecraft can not be successfully performed.

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<b>Parent Requirement</b>	<b>CCS-0470</b>	The CCS shall be able to control the configuration of a device connected through the Common Test Device Interface.
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Child Ident	Child Requirement
CCS.1-0570	The FEP shall accept commands and data from CMD to be sent to a device connected through the Common Test Device Interface.
CCS.1-0580	The FEP shall be able to send commands that alter the configuration of a device connected through the Common Test Device Interface.
CCS.1-0590	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to a device connected through the Common Test Device Interface has been successfully performed.
CCS.1-0600	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to a device connected through the Common Test Device Interface cannot be successfully performed.
CCS.2-0610	Command Processing shall be able to execute actions that alter the configuration of a device connected through the Common Test Device Interface.
CCS.2-0620	Command Processing shall notify the appropriate user when requested changes to the configuration of a device that is connected through the Common Test Device Interface, can not be performed.
CCS.2-0630	Command Processing shall be able to execute actions that result in the transmission of information (i.e., commands and data) to a device that is connected through the Common Test Device Interface.
CCS.2-0640	Command Processing shall notify the appropriate user when the transmission of information (i.e., commands and data) to a device that is connected through the Common Test Device Interface, can not be successfully performed.
CCS.2-0650	Command Processing shall be capable of sending test blocks through the command link with the data portion selected from a set of patterns in the CCS command database.
CCS.2-0660	Command Processing shall provide the capability from CCL of transmitting a user specified ASCII text string through the Common Test Device Interface.

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<b>Parent Requirement</b>	<b>CCS-0480</b>	The CCS shall be able to control a simulation facility and monitor its current state.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0610	The FEP shall accept commands and data from CMD to be sent to a simulation facility.
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CCS.1-0620	The FEP shall be able to send commands that alter the configuration of a simulation facility.
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CCS.1-0630	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to a simulation facility has been successfully performed.
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CCS.1-0640	The FEP shall notify CMD when the transmission of information (i.e., commands and data) to a simulation facility cannot be successfully performed.
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CCS.2-0670	Command Processing shall be able to execute actions that result in the transmission of information (i.e., commands and data) to a simulation facility.
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CCS.2-0680	Command Processing shall notify the appropriate user when the transmission of information (i.e., commands and data) to a simulation facility can not be successfully performed.
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<b>Parent Requirement</b>	<b>CCS-0490</b>	The CCS shall be able to monitor, evaluate, and log the status of the spacecraft, based on either real-time or recorded engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0560	The FEP shall be able to send real-time processed engineering data to SYM.
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<b>Parent Requirement</b>	<b>CCS-0500</b>	The CCS shall be able to detect user specified deviations in spacecraft behavior from expected spacecraft operations, based on real-time engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0510</b>	The CCS shall determine what corrective action to take when a deviation in expected spacecraft operations is detected, based on real-time engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0520</b>	The CCS shall notify the appropriate user when a deviation in expected spacecraft operations is detected, based on real-time engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0300	CCS Management shall be able to notify a specified user that they are needed to support system operations (e.g., via pager).
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<b>Parent Requirement</b>	<b>CCS-0530</b>	The CCS shall provide the capability for authorized users to prevent the system from automatically taking specific actions when a deviation in expected spacecraft operations is detected.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0540</b>	The CCS shall be able to detect deviations in spacecraft behavior from expected spacecraft operations, based on recorded engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0550</b>	The CCS shall notify the appropriate user when a deviation in expected spacecraft operations is detected, based on recorded engineering data.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0300	CCS Management shall be able to notify a specified user that they are needed to support system operations (e.g., via pager).	
<b>Parent Requirement</b>	<b>CCS-0560</b>	The CCS shall provide the capability for authorized users to retrieve engineering data (telemetry, FSW dumps) maintained by the system.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.4-0280	Data Management shall maintain information concerning the source of all stored engineering information.	
CCS.4-0290	Data Management shall logically segregate engineering information that is received from different sources.	
CCS.4-0410	Data Management shall provide authorized CCS users and applications query access to all data that is maintained in tabular form within CCS.	
<b>Parent Requirement</b>	<b>CCS-0570</b>	The CCS shall provide the capability for authorized users to display real-time engineering data.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.1-0650	The FEP shall support the real-time distribution of processed engineering data to authorized users.	
CCS.4-0380	Data Management shall provide storage for data that is maintained in tabular form (e.g., engineering data, event data, catalogs) that permits users and applications to create, retrieve, update, and delete that data.	

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<b>Parent Requirement</b>	<b>CCS-0580</b>	The CCS shall provide the capability for authorized users to process (i.e., perform analysis/trending functions and display) retrieved engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0380	Data Management shall provide storage for data that is maintained in tabular form (e.g., engineering data, event data, catalogs) that permits users and applications to create, retrieve, update, and delete that data.
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<b>Parent Requirement</b>	<b>CCS-0590</b>	The CCS shall provide the capability for authorized users to save processed engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0380	Data Management shall provide storage for data that is maintained in tabular form (e.g., engineering data, event data, catalogs) that permits users and applications to create, retrieve, update, and delete that data.
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<b>Parent Requirement</b>	<b>CCS-0600</b>	The CCS shall perform spacecraft subsystem monitoring, attitude determination, calibration and engineering data management functions.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0610</b>	The CCS shall be able to process engineering data received from new ORU/ORIs.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0620</b>	The CCS shall provide the capability for authorized users to request changes to the system configuration.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0370	CCS Management shall provide the capability for authorized users to submit change requests against the operational system configuration.
CCS.5-0380	CCS Management shall provide the capability for authorized users to submit change requests against the a test facility configuration.

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**Parent Requirement**      **CCS-0630**      The CCS shall provide the capability for authorized users to track the status of requested changes to the system configuration.

**Child Ident**                      **Child Requirement**

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CCS.5-0390      CCS Management shall provide the capability for authorized users to view and update the status of change requests.

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**Parent Requirement**      **CCS-0640**      The CCS shall provide the capability for authorized users to assess the impact of requested changes to the system configuration.

**Child Ident**                      **Child Requirement**

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CCS.5-0400      CCS Management shall provide the capability for authorized users to assess the impact of change requests on system design and implementation information.

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**Parent Requirement**      **CCS-0650**      The CCS shall provide the capability for authorized users to schedule the implementation of a specific proposed change to the system configuration.

**Child Ident**                      **Child Requirement**

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CCS.5-0410      CCS Management shall provide the capability for authorized users to assign resources to implement each change request.

<b>Parent Requirement</b>	<b>CCS-0660</b>	The CCS shall provide the capability for authorized users to make changes to the operational system configuration.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0165	CCS Management shall provide automated tools to assist users with creation and maintenance of requirements, and system design and implementation information.	
CCS.5-0430	CCS Management shall provide the capability for authorized users to make changes to system design and implementation information as defined in a specific change request.	
<b>Parent Requirement</b>	<b>CCS-0670</b>	The CCS shall provide the capability for authorized users to test and verify changes to the operational system configuration.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0440	CCS Management shall provide the capability for authorized users to test and verify changes to system design and implementation information resulting from a specific change request.	
<b>Parent Requirement</b>	<b>CCS-0680</b>	The CCS shall provide the capability for authorized users to generate distributions of the system for specified facilities (e.g., test facilities).
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0310	CCS Management shall maintain the software versions for deployed(able) configurations including the spacecraft operations CCS and Test Facility CCS installations.	
CCS.5-0320	CCS Management shall be capable of distributing both COTS and applications software releases and versions to all affected CCS installations.	
CCS.5-0330	CCS Management shall provide the capability for authorized users to generate distributions of the system for specified facilities (e.g., test facilities).	

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<b>Parent Requirement</b>	<b>CCS-0690</b>	The CCS shall be able to process Project Reference Data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0100	Data Management shall receive Project Reference Data information from CCM.
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CCS.4-0390	Data Management shall maintain Project Reference Data extracted from the following files defined in ICD-26: telemetry format data (TDFD), command data (CMDf, CMDS, CMDP), command groups (CMDG), dump compare (DMPR), derived parameters (DPAR), general equations (GEQF), OTA definition (OTAF), PSTOL procedures (PSTO), servicing mission definition (SMDF), general global parameters (GGPD), symbols of interest (SOIF), table format and parameters (TFPF), ??(TIDF), tape table of contents (TTOC).
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CCS.5-0340	CCS Management shall be capable of distributing new versions of the Project Reference Data releases and versions to all affected CCS installations.
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<b>Parent Requirement</b>	<b>CCS-0700</b>	The CCS shall provide the capability for users to invoke a standard set of office automation functions (e.g., e-mail, word processing, spreadsheets).
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0500	CCS Management shall provide the capability for users to invoke a standard set of office automation functions (e.g., e-mail, word processing, spreadsheets).
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<b>Parent Requirement</b>	<b>CCS-0701</b>	The CCS shall provide the capability for users to access (create, retrieve, update and delete) data needed to support the mission.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0165	CCS Management shall provide automated tools to assist users with creation and maintenance of requirements, and system design and implementation information.
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CCS.5-0305	CCS Management shall be able to produce reports that present details of the operational status and history of CCS subsystems and equipment.
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<b>Parent Requirement</b>	<b>CCS-0710</b>	The CCS shall be able to monitor, evaluate and log the status of its own components to detect unexpected deviations in system behavior.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0200	The FEP shall detect telemetry format changes for any data for which frame synchronization is maintained, report the change as an event, and automatically switch to the proper decommutation format.
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CCS.5-0060	CCS Management shall receive System Event information from SYM.
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CCS.5-0070	CCS Management shall send CCM event information to SYM.
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CCS.5-0250	CCS Management shall monitor and record the status of CCS components.
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<b>Parent Requirement</b>	<b>CCS-0720</b>	The CCS shall notify the appropriate user when a deviation in expected CCS system behavior is detected.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0290	CCS Management shall automatically notify a System Administrator of any abnormal condition with the notification priority commensurate with the seriousness of the condition.
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<b>Parent Requirement</b>	<b>CCS-0730</b>	The CCS shall be able to automatically take action (e.g., reconfigure components) when an unexpected deviation in expected CCS system behavior is detected.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0240	CCS Management shall provide the capability for authorized users to establish rules to correct failures of CCS hardware components, software processes and network elements.
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CCS.5-0260	CCS Management shall automatically detect user specified deviations of system behavior from expected CCS operations.
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CCS.5-0270	CCS Management shall determine what action to take to correct failures of CCS hardware components, software processes and network elements.
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CCS.5-0580	CCS Management shall be able to execute at least 4 CCL system infrastructure statements per second.
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<b>Parent Requirement</b>	<b>CCS-0740</b>	The CCS shall provide the capability for authorized users to prevent the CCS system from automatically taking specific actions when an unexpected deviation in expected CCS system behavior is detected.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0280	CCS Management shall provide the capability for authorized users to inhibit the CCS system from automatically taking specific actions when an unexpected deviation in CCS system behavior is detected.
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<b>Parent Requirement</b>	<b>CCS-0750</b>	The CCS shall maintain a database of on-line system documentation.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0450	CCS Management shall maintain on-line documentation for system functions and capabilities.
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<b>Parent Requirement</b>	<b>CCS-0760</b>	The CCS shall provide the capability for authorized users to update the on-line system documentation.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0480	CCS Management shall provide the capability for authorized users to update on-line system documentation.
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CCS.5-0490	CCS Management shall capable of distributing new versions of on-line system documentation to affected CCS installations.
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<b>Parent Requirement</b>	<b>CCS-0770</b>	The CCS shall provide the capability for users to access on-line system documentation and functions.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0460	CCS Management shall provide the capability for users to access on-line system documentation.	
<b>Parent Requirement</b>	<b>CCS-0780</b>	The CCS shall notify the user when requested on-line system documentation cannot be provided.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0470	CCS Management shall notify the user when requested on-line system documentation cannot be provided.	
<b>Parent Requirement</b>	<b>CCS-0790</b>	The CCS shall protect spacecraft commanding functions in accordance with Sensitivity Level 2 system requirements as defined by GHB 1600.1A and NHB 2410.9.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.2-0690	Command Processing shall protect spacecraft commanding functions in accordance with Sensitivity Level 2 system requirements as defined by GHB 1600.1A and NHB 2410.9.	
<b>Parent Requirement</b>	<b>CCS-0800</b>	The CCS shall protect all CCS user accessible functions and data in accordance Sensitivity Level 1 system requirements as defined in GHB 1600.1A and NHB 2410.9.
<b>Child Ident</b>	<b>Child Requirement</b>	

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<b>Parent Requirement</b>	<b>CCS-0810</b>	The CCS shall require all system users to uniquely identify themselves as part of the logon sequence.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0820</b>	The CCS shall require all system users to authenticate their identity prior to being granted access to the system.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0830</b>	The CCS shall verify that a user is authorized for a requested function prior to granting access to that function.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0840</b>	The CCS shall verify that a user is authorized to receive requested data prior to granting access to that data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0850</b>	The CCS shall be able to create, maintain, and protect from modification or unauthorized access or destruction, an audit trail of accesses to system functions and data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0860</b>	The CCS shall provide the capability for a security administrator to add/maintain/delete user security profiles to/within/from the CCS system.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0510	CCS Management shall provide the capability for a security administrator add new CCS users to the operational system.
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CCS.5-0520	CCS Management shall provide the capability for a security administrator modify existing CCS user profiles within the operational system.
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CCS.5-0530	CCS Management shall provide the capability for a security administrator delete existing CCS user profiles from the operational system.
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<b>Parent Requirement</b>	<b>CCS-0870</b>	The CCS shall provide the capability for a security administrator to generate audit reports from the system audit trail.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0540	CCS Management shall provide the capability for a security administrator to request the collection of security audit data from CCS components.
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CCS.5-0550	CCS Management shall provide the capability for a security administrator to generate audit reports from the security audit data.
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CCS.5-0560	CCS Management shall be able to store security audit data for the life of the mission.
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<b>Parent Requirement</b>	<b>CCS-0880</b>	The CCS shall provide the capability for unidentified users to access those system functions and data that have explicitly been made available to them.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0450	Data Management shall provide access to certain specially prepared data to the general public through the World Wide Web.
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<b>Parent Requirement</b>	<b>CCS-0890</b>	The CCS shall be able to ingest engineering data from multiple sources (i.e., real-time downlink, recorder dump, OBC dump and simulation facility) simultaneously.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0660	The FEP shall be able to ingest engineering data from two 1 Mbps sources, two 32 Kbps sources and one 4 Kbps source (i.e., real-time downlink, recorder dump, OBC dump and simulation facility) simultaneously.
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CCS.4-0460	Data Management shall be able to accept and store data from multiple sources (i.e., real-time downlink, recorder dump, OBC dump and simulation facility) simultaneously.
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<b>Parent Requirement</b>	<b>CCS-0900</b>	The CCS shall determine what corrective action to take, within 10 (TBD) seconds after receipt of real-time engineering data that indicates a deviation in expected spacecraft operations.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-0910</b>	The CCS shall incorporate information from planning and scheduling products into the integrated command schedule within 1 hour (TBD) of receipt of that information.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.2-0700	Command Processing shall incorporate information from planning and scheduling products into the integrated command schedule within 1 hour (TBD) of receipt of that information.
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<b>Parent Requirement</b>	<b>CCS-0920</b>	The CCS shall incorporate user requested actions into the integrated command schedule within 10 seconds (TBD) after user entry of the request.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.2-0710	Command Processing shall incorporate user requested actions into the integrated command schedule within 10 seconds (TBD) after user entry of the request.	
<b>Parent Requirement</b>	<b>CCS-0930</b>	The CCS shall commence execution of verified actions in the integrated command schedule within 0.1 seconds (TBD) of the specified time.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.2-0720	Command Processing shall commence execution of verified actions in the integrated command schedule within 0.1 seconds (TBD) of the specified time.	
<b>Parent Requirement</b>	<b>CCS-0940</b>	The CCS shall make real-time engineering data available to requesting users within 0.5 seconds after the receipt of that data by the system.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.1-0670	The FEP shall make real-time engineering data available for distribution within 0.2 seconds after the receipt of that data.	
CCS.4-0470	Data Management shall make real-time engineering data available to requesting users within 0.3 seconds after the receipt of that data.	
<b>Parent Requirement</b>	<b>CCS-0950</b>	The CCS shall be able to process dumps of engineering data recorded on-board the spacecraft at twice the rate that the data was recorded.
<b>Child Ident</b>	<b>Child Requirement</b>	

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CCS.1-0680	The FEP shall make recorded engineering data available for distribution within one-half of the elapsed time represented by the dump (e.g., an 8 hour dump must be ready in less than 4 hours).
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<b>Parent Requirement</b>	<b>CCS-0960</b>	The CCS shall make recorded engineering data available to requesting users within 15 (TBD) minutes of receipt of that data by the system.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0480	Data Management shall make recorded engineering data available to requesting users within 3 (TBD) minutes of receipt of that data.
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<b>Parent Requirement</b>	<b>CCS-0970</b>	The CCS shall make merged engineering data available to requesting users within 2 (TBD) hours after receipt of the recorded engineering data that is needed for the merge.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0490	Data Management shall make merged engineering data available to requesting users within 2 (TBD) hours after receipt of the recorded engineering data that is needed for the merge.
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<b>Parent Requirement</b>	<b>CCS-0980</b>	The CCS shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 1 (TBD) minute on average [3 (TBD) minutes maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is less than 30 days old, and the resulting data set does not exceed 100,000 points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0500	Data Management shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 1 (TBD) minute on average [3 (TBD) minutes maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is less than 30 days old, and the resulting data set does not exceed 100,000 points of data.
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<b>Parent Requirement</b>	<b>CCS-0990</b>	The CCS shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 2 (TBD) hours on average [8 (TBD) hours maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is greater than 30 days and less than 2 years old, and the resulting data set does not exceed 30,000 points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0510	Data Management shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 2 (TBD) hours on average [8 (TBD) hours maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is greater than 30 days and less than 2 years old, and the resulting data set does not exceed 30,000 points of data.
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<b>Parent Requirement</b>	<b>CCS-1000</b>	The CCS shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 24 (TBD) hours on average [3 (TBD) days maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 2 years old, and the resulting data set does not exceed 130,000 points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0520	Data Management shall provide requested summary engineering data (derived from hourly statistics) to a requesting user within 24 (TBD) hours on average [3 (TBD) days maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 2 years old, and the resulting data set does not exceed 130,000 points of data.
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<b>Parent Requirement</b>	<b>CCS-1010</b>	The CCS shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within 4.5 (TBD) hours on average [14 (TBD) hours maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is less than 1 day old, and the resulting data set does not exceed 60,000 points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0530	Data Management shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within 4.5 (TBD) hours on average [14 (TBD) hours maximum] after the submission of a request specifying start and stop times, when all the requested engineering data is less than 1 day old, and the resulting data set does not exceed 60,000 points of data.
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<b>Parent Requirement</b>	<b>CCS-1020</b>	The CCS shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within 9 (TBD) hours on average [28 (TBD) hours maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 1 day and less than 30 days old, the requested time period is less than 2 days in duration, and the resulting data set does not exceed 60,000 points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0540	Data Management shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within 9 (TBD) hours on average [28 (TBD) hours maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 1 day and less than 30 days old, the requested time period is less than 2 days in duration, and the resulting data set does not exceed 60,000 points of data.
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<b>Parent Requirement</b>	<b>CCS-1030</b>	The CCS shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within (TBS) hours on average [ (TBS) hours maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 30 days old, the requested time period is less than 2 days in duration, and the resulting data set does not exceed 60,000 (TBD) points of data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0550	Data Management shall provide requested detailed engineering data (derived from raw telemetry) to a requesting user within (TBS) hours on average [ (TBS) hours maximum] after the submission of a request specifying start and stop times, when any of the requested engineering data is greater than 30 days old, the requested time period is less than 2 days in duration, and the resulting data set does not exceed 60,000 (TBD) points of data.
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<b>Parent Requirement</b>	<b>CCS-1040</b>	The CCS shall provide a result set (defined by an SQL query) to a requesting user within 30 (TBD) seconds on average [90 (TBD) seconds maximum] after the submission of a request to identify pre-defined spacecraft/system events, when all the requested events are less than 30 days old.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.4-0560	Data Management shall provide a result set (defined by an SQL query) to a requesting user within 30 (TBD) seconds on average [90 (TBD) seconds maximum] after the submission of a request to identify pre-defined spacecraft/system events, when all the requested events are less than 30 days old.	
<b>Parent Requirement</b>	<b>CCS-1050</b>	The CCS shall provide a result set (defined by an SQL query) to a requesting user within 2 (TBD) minutes on average [6 (TBD) minutes maximum] after the submission of a request to identify pre-defined spacecraft/system events, when any of the requested events is greater than 30 days old.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.4-0570	Data Management shall provide a result set (defined by an SQL query) to a requesting user within 2 (TBD) minutes on average [6 (TBD) minutes maximum] after the submission of a request to identify pre-defined spacecraft/system events, when any of the requested events is greater than 30 days old.	
<b>Parent Requirement</b>	<b>CCS-1060</b>	The CCS shall provide a result set (defined by an SQL query), to a requesting user within 6 (TBD) hours on average [18 (TBD) hours maximum] after the submission of a request to identify user-defined spacecraft/system events, when all the requested events are less than 30 days old.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.4-0580	Data Management shall provide a result set (defined by an SQL query), to a requesting user within 6 (TBD) hours on average [18 (TBD) hours maximum] after the submission of a request to identify user-defined spacecraft/system events, when all the requested events are less than 30 days old.	

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<b>Parent Requirement</b>	<b>CCS-1070</b>	The CCS shall provide a result set (defined by an SQL query), to a requesting user within 6 (TBD) days on average [18 (TBD) days maximum] after the submission of a request to identify user-defined spacecraft/system events, all of the requested events are less than 2 years old.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.4-0590	Data Management shall provide a result set (defined by an SQL query), to a requesting user within 6 (TBD) days on average [18 (TBD) days maximum] after the submission of a request to identify user-defined spacecraft/system events, all of the requested events are less than 2 years old.
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<b>Parent Requirement</b>	<b>CCS-1080</b>	The CCS shall notify the appropriate user within 5 (TBD) seconds, when a deviation in expected CCS system behavior is detected.
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.5-0590	CCS Management shall notify the appropriate user within 5 (TBD) seconds, when a deviation in expected CCS system behavior is detected.
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<b>Parent Requirement</b>	<b>CCS-1090</b>	The CCS shall be able to support the transition from existing spacecraft hardware to new ORU/ORIs within 5 (TBD) minutes .
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<b>Child Ident</b>	<b>Child Requirement</b>
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CCS.1-0690	The FEP shall be able to support the transition from existing spacecraft hardware to new ORU/ORIs within 5 (TBD) minutes.
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CCS.2-0730	Command Processing shall be able to support the transition from existing spacecraft hardware to new ORU/ORIs within 5 (TBD) minutes.
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<b>Parent Requirement</b>	<b>CCS-1100</b>	The CCS shall be designed to maintain a 50 percent reserve of processing power during normal system operations.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1110</b>	The CCS shall be designed to maintain a 50 percent reserve of main memory in each processing unit during normal system operations.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1120</b>	The CCS shall be designed to maintain a 50 percent reserve of available on-line storage during normal system operations.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1130</b>	The CCS shall be designed to maintain a 50 percent reserve of input/output bandwidth on each communication channel during normal system operations.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1140</b>	The CCS shall be designed to support a TBD percent increase in processing power.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1150</b>	The CCS shall be designed to support a TBD percent increase in main memory for each processing unit.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1160</b>	The CCS shall be designed to support a TBD percent increase in on-line storage.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1170</b>	The CCS shall be designed to support system growth and expansion without modification of operating system software.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1180</b>	The CCS shall be designed to support hardware expansion with minimal impact on infrastructure and applications software.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1190</b>	The CCS shall be designed to concurrently support normal operations, Servicing Mission training, and simulations.
<b>Child Ident</b>	<b>Child Requirement</b>	
CCS.5-0220	CCS Management shall be able to accommodate sufficient workstations to support servicing missions.	
<b>Parent Requirement</b>	<b>CCS-1200</b>	The CCS shall have an overall system availability that exceeds 0.99 (TBD).
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1210</b>	The CCS shall have an overall availability that exceeds 0.999 (TBD) for those functions related to the receipt and initial processing of engineering data.
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1220</b>	The CCS shall contain no lowest replaceable unit (LRU) that represents a single point of failure, whose availability is less than 0.9995 (TBD).
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1230</b>	The CCS shall have a Mean Time Between Failure (MTBF) that exceeds 500 (TBD) hours.
<b>Child Ident</b>	<b>Child Requirement</b>	

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<b>Parent Requirement</b>	<b>CCS-1240</b>	The CCS shall have a Mean Time To Restore (MTTR) of fewer than 8 hours.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1250</b>	The CCS shall have a Mean Time To Restore of fewer than 90 minutes for those LRUs that are related to the receipt and initial processing of engineering data.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1260</b>	The CCS shall have a BER of less than 1 in $10^{12}$ for all internally stored information.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1270</b>	The CCS shall be comprised of LRUs that can be completely replaced within a 2 hour time period.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1280</b>	The CCS shall include any special test equipment (e.g., PSS) needed to meet the system RMA requirements.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1290</b>	The CCS shall include a spare copy of any non-redundant LRU that has an MTBF of less than 500 (TBD) hours.
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1300</b>	The CCS design shall be modular fashion to support its use in test facilities.
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1310</b>	The CCS design shall, where practical, maximize the level of automation that it can provide in the control and monitoring of the spacecraft.
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1320</b>	The CCS design shall, where practical, use changes to system information (e.g., operational parameters, rules) to manage modification to system operations.
<b>Child Ident</b>	<b>Child Requirement</b>	
<b>Parent Requirement</b>	<b>CCS-1330</b>	The CCS design shall allow for the current operation of multiple system threads, each in a specific mode of operation (e.g., testing, Servicing Mission development, simulations, training, and SM shuttle launch activities) without affecting normal operations.
<b>Child Ident</b>	<b>Child Requirement</b>	

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<b>Parent Requirement</b>	<b>CCS-1340</b>	The CCS design shall support the reallocation of system workload across processing units without requiring software modification.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1350</b>	The CCS design shall provide backup modes of operation that allow alternate data processing paths in the event of component failure.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1360</b>	The CCS design shall automatically switch between its primary and backup modes of operation.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1370</b>	The CCS design shall use Open-Systems communication protocols (e.g., TCP/IP).
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1380</b>	The CCS design shall, where practical, use current industry standards (e.g., Open-GL, MOTIF, JAVA) to provide users with a multi-window environment.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1390</b>	The CCS design shall use the ANSI-SQL standard for all database management system interactions.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1400</b>	The CCS design shall execute over a X-Open compliant operating system.
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<b>Child Ident</b>	<b>Child Requirement</b>
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<b>Parent Requirement</b>	<b>CCS-1410</b>	The CCS design shall, where practical, maximize the use of COTS/GOTS components in the system.
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